

Level	Computing Theory	Computing in Action	Information Technology & Digital Literacy
7 - 9	<ul style="list-style-type: none"> <li>I can explain the difference between low level programming and high level programming</li> <li>I understand the relationship between data representation and data quality</li> <li>I can explain how and why values are data typed in many different languages when manipulated within programs.</li> </ul>	<ul style="list-style-type: none"> <li>I can evaluate the effectiveness of an algorithm / models for similar problems</li> <li>I can effectively explain how an algorithm works using logical reasoning</li> <li>I can use Pseudocode effectively as a structured language</li> <li>I know and can explain the scope of a variable</li> <li>I can use a 'while' and 'until' loop</li> <li>I can test a written code for errors and correct effectively</li> </ul>	<ul style="list-style-type: none"> <li>I can explain the reason for hardware and protocols within a network system</li> <li>I can explain the client-server model including how dynamic web pages use server-side scripting and that web servers process and store data entered by users.</li> <li>I can explain how data is held online and how this impacts privacy and the users identity</li> <li>I can collect, analyse, and evaluate data to meet the needs of a known user group within a creative project</li> <li>I can effectively design and create digital artefacts for a wider or remote audience</li> <li>I can document user feedback, improvements made and refinements made</li> <li>I can explain and justify how the use of technology impacts on society, from the perspective of social, economic, political legal, ethical and moral issues.</li> </ul>
6	<ul style="list-style-type: none"> <li>I can complete binary addition</li> <li>I can explain the Von Neumann architecture within the fetch – decode – execute cycle</li> <li>I can explain how data is stored in memory</li> <li>I understand how numbers, images, sounds and character sets use the same bit patterns.</li> <li>I can distinguish between data used in a simple program (a variable) and the storage structure for that data.</li> </ul>	<ul style="list-style-type: none"> <li>I can utilise the same algorithm in similar problems (generalisation)</li> <li>I can identify the different outcomes of an algorithm based on the task</li> <li>I can apply a nested selection</li> <li>I can use functions with parameters</li> <li>I can use appropriately procedures and functions</li> <li>I can explain and use negation in operators</li> <li>I can use and edit one dimensional data structures (array)</li> <li>I can find and fix syntactical errors (errors in code/formulae)</li> </ul>	<ul style="list-style-type: none"> <li>I know names of hardware e.g. hubs, routers, switches, and the names of protocols e.g. SMTP, iMAP, POP, FTP, TCP/IP, associated with networking systems.</li> <li>I can use online services securely and justify the use</li> <li>I can justify the choice of software, internet services and device to solve the given problem</li> <li>I can create a peer feedback questionnaire to gather opinions from others on how to improve and refine where necessary</li> <li>I can explain how technology can impact a society</li> </ul>
5	<ul style="list-style-type: none"> <li>I can explain that binary is at the base of all actions on a computer and all programs have to translate to binary to work</li> <li>I can explain functions of internal computers parts</li> <li>I understand the fetch – decode – execute cycle</li> <li>I can define data types: Boolean and real numbers</li> <li>I can query data effectively in a table</li> <li>I can demonstrate the input – process – output cycle</li> </ul>	<ul style="list-style-type: none"> <li>I can explain what an iteration is</li> <li>I can explain different algorithms for a given problem</li> <li>I can appropriately construct a flowchart to a given problem</li> <li>I can use pattern recognition to solve problems</li> <li>I can explain how algorithms are used in computers</li> <li>I can use python as a high level programming language and use a library</li> <li>I can apply Boolean logic</li> <li>I can show Boolean logic in a flowchart and Pseudocode</li> <li>I can select and use the correct data types</li> </ul>	<ul style="list-style-type: none"> <li>I can explain how search engines rank results</li> <li>I can create a static webpage using HTML / CSS</li> <li>I can explain how data transfers over a network including the internet</li> <li>I can evaluate the correct use of the device, software and internet services to achieve the given problem</li> <li>I can explain the ethical constraints of the use of technology outside school</li> <li>I can create a test plan to effectively evaluate the final product – using the outcome to refine the product</li> </ul>
4	<ul style="list-style-type: none"> <li>I can change a denary number to binary number and vice versa</li> <li>I can explain why and when computers are used</li> <li>I can explain the uses of a main operating system</li> <li>I can explain Physical, Wireless and Mobile Network differences</li> <li>I can use more complex queries using Boolean operators</li> <li>I can analyse and evaluate data and information</li> <li>I understand that poor quality data leads to unreliable results &amp; inaccurate conclusions.</li> <li>I can explain the input – process – output cycle</li> </ul>	<ul style="list-style-type: none"> <li>I can explain the best fit – human or computer for a given task</li> <li>I can break down a problem and create a solution</li> <li>I understand there are more than one solutions to a given problem</li> <li>I can use appropriately if, then and else statements</li> <li>I can show decisions in a flowchart and Pseudocode</li> <li>I can use variables and relational operators within a loop</li> <li>I can design, write and debug a basic set of instructions</li> </ul>	<ul style="list-style-type: none"> <li>I can explain how search engines rank results</li> <li>I can create a static webpage using HTML / CSS</li> <li>I can explain how data transfers over a network including the internet</li> <li>I can evaluate the correct use of the device, software and internet services to achieve the given problem</li> <li>I can explain the ethical constraints of the use of technology outside school</li> <li>I can create a test plan to effectively evaluate the final product – using the outcome to refine the product</li> </ul>
3	<ul style="list-style-type: none"> <li>Know that computers use binary to understand what to do</li> <li>I can identify hardware components and know the difference between hardware and software</li> <li>I can identify input and output devices</li> <li>I can explain the difference between data and information</li> </ul>	<ul style="list-style-type: none"> <li>I can design an algorithm using repetition and two way selection (if, then, else)</li> <li>I can create a flowchart for an algorithm</li> <li>I can write a list of instructions for an algorithm</li> <li>I can follow an algorithm to predict the outcome based on the input</li> </ul>	<ul style="list-style-type: none"> <li>I know names of hardware e.g. hubs, routers, switches, and the names of protocols e.g. SMTP, iMAP, POP, FTP, TCP/IP, associated with networking systems.</li> <li>I can use online services securely and justify the use</li> <li>I can justify the choice of software, internet services and device to</li> </ul>

	<ul style="list-style-type: none"> <li>I can search for data in a flat file</li> <li>I can use single criteria searches in tables</li> </ul>	<ul style="list-style-type: none"> <li>I can use an algorithm in a program to solve a given problem</li> <li>I can declare and assign variables</li> </ul>	<p>solve the given problem</p> <ul style="list-style-type: none"> <li>I can create a peer feedback questionnaire to gather opinions from others on how to improve and refine where necessary</li> <li>I can explain how technology can impact a society</li> </ul>
1 to 2	<ul style="list-style-type: none"> <li>I know different types of data: text, number.</li> <li>I know programs use different data types</li> <li>I can put data into tables</li> <li>I can identify digital devices as a computer</li> <li>I can use a range of input and output devices</li> </ul>	<ul style="list-style-type: none"> <li>I know that an algorithm is the base of a program</li> <li>I can design a simple algorithm and find errors</li> <li>I can predict an outcome</li> <li>I can use a loop and an if statement within a program</li> </ul>	<ul style="list-style-type: none"> <li>I can search the web to collect an image and then edit it</li> <li>I know how to report if I see or receive something wrong</li> <li>I know how to behave on the internet</li> <li>I can use a folder to save my work</li> <li>I know is an image is good or bad quality</li> <li>I can talk about what I have learnt and improve from feedback</li> </ul>